NHDES WETLANDS BUREAU
MAJOR IMPACT WETLANDS PERMIT APPLICATION

NH DEPARTMENT OF TRANSPORTATION
ROUTE 104 CULVERT CROSSING
TAX MAP R02 - RIGHT-OF-WAY
MEREDITH, NEW HAMPSHIRE

Prepared For:

NH Department of Transportation
7 Hazen Drive
PO Box 483
Concord, NH 03301

Prepared By:

Stoney Ridge Environmental LLC
229 Prospect Mountain Road
Alton, New Hampshire 03809
Phone: (603) 776-5825 Fax: (603) 776-5826

January 2018

SRE # 17-072

NHDES Wetlands Bureau
Major Impact Wetlands Permit Application

NH Department of Transportation
Route 104 Culvert Crossing
Meredith, NH

Table of Contents

January 17, 2018

Mr. Gino Infascelli, Wetlands Inspector
Land Resources Management Program
Department of Environmental Services
P.O. Box 95, 29 Hazen Drive
Concord, NH 03302-0095

Re: **NH DES Wetlands Bureau Major Permit Application**
Route 104 Culvert Crossing
Tax Map R02, Right-of-Way
Meredith, New Hampshire

Dear Mr. Infascelli,

Stoney Ridge Environmental LLC (SRE) is submitting this Major Application on behalf of the New Hampshire Department of Transportation (NHDOT), owner of the project area referenced above. The proposed project consists of the replacement of an existing 48 inch corrugated metal pipe (CMP) with a 48 inch reinforced concrete pipe (RCP) culvert adjacent to a prime wetland. The existing culvert is located on Route 104 in Meredith, New Hampshire. The overall geographic location of the existing culvert is found approximately 0.25 miles east of the intersection of Winona Road, Pease Road and Route 104. The wetland system at the location of the crossing consists of an emergent cattail wetland on the east side of Route 104. The emergent cattail wetland is fed from an intermittent stream that originates from an unnamed pond. Upon entering the emergent wetland, the intermittent stream disperses. There was no channelized flow or scoured channel on the east side of the road. Water flows from east to west under Route 104 and into the Town of Meredith designated Hatch Brook Prime Wetland system, located at the corner of Hatch Corner Road and Route 104, which feeds into Hatch Brook.

Existing Site Conditions

The existing metal culvert is rotten on the bottom. This project proposes to replace the existing 48" CMP culvert with a 48 inch RCP culvert. The existing culvert will be installed to match the existing inlet and outlet inverts. The culvert would be replaced in the same location and trajectory as the existing culvert. The existing headwalls and wing walls onsite are constructed of stone and mortar and will be impacted during construction. NHDOT is proposing to utilize precast concrete headwall to replace the existing headwalls and wing walls on both the east and west sides of the project area. The proposed headwalls and wing walls will be in the same location and be the same length as the existing structures. The proposed headwalls and wing walls will be 10" wide, compared to the 6" width of the existing structures. The proposed headwalls and wing walls will be installed no further into the wetland than the existing structures, resulting in no additional jurisdictional impact than what currently exists. The

proposed project will result in 369 square feet (sq.ft.) of permanent impact to the emergent wetland outside of the prime wetland for the replacement of the culvert crossing and the headwall and wing wall replacement (east side of the road). There will be 126 sq.ft. of temporary impact associated with the replacement of the headwall, wing wall and bypass pumping along the east side of the road. Within the prime wetland there will be 13 sq.ft. of permanent impact to replace the headwall and wingwall. The total temporary impacts on the prime wetland side of the crossing will be 122 sq.ft., for the headwall and wing wall replacement and necessary bypass pumping. The total impact for this wetland crossing will be 382 sq.ft of permanent impacts and 248 sq.ft. of temporary impacts, overall resulting in 630 sq.ft. of jurisdictional impact.

The wetland on the east side of the project area is classified as palustrine, emergent, persistent system that is seasonally flooded/saturated (PEM1E). The wetland on the west side of the crossing is classified as palustrine, emergent, persistent system that is seasonally flooded/saturated and palustrine, scrub-shrub, broad-leaved deciduous system that is seasonally flooded/saturated (PEM1E/PSS1E). The wetland on the west side of the crossing is associated with a much larger wetland system that has been designated as a prime wetland by the Town of Meredith as the Hatch Brook Prime Wetland system.

Function and Value Assessment

The functions and values of the wetland systems associated with the project were assessed by Deidra Benjamin, CWS/CESSWI of SRE, on August 31, 2017 using the Army Corps of Engineers' Highway Methodology Workbook Supplement (Appendix A, USACE, September 1999). Wetlands were classified by SRE utilizing the criteria outlined in the "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al. 1978).

Thirteen functions and values were assessed for each system including: groundwater recharge/discharge, floodflow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, recreation, educational/scientific value, uniqueness/heritage, visual quality/aesthetics and endangered species habitat. Wetland functions are considered to be principal if they are an important physical component of a wetland system. Wetland values are considered to be principal if they are of special value to society, from a local, regional and/or national perspective. The rationale for the assigned functions and values for each wetland system is shown on the attached Wetland Function-Value Evaluation Forms.

SRE performed a function and value assessment for the wetland areas within the project limits. It should be noted that the following assessment is not the entire Hatch Brook prime wetland, but only for the areas of the east and west wetland segments that will be impacted.

During the assessment SRE identified 7 suitable functions and 2 principal functions. The suitable functions for the portions of the wetland systems assessed are groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization and wildlife habitat. The two principal functions identified are

sediment/toxicant retention and nutrient removal. The two wetland areas within the project limits are emergent systems dominated largely by cattails and tall sedges. A thick organic cap was observed in the west side wetland system. Dense vegetation paired with organic material makes sediment/toxicant retention and nutrient removal principal functions of this system. The proximity of Route 104 prevents wildlife habitat from being a principal function. The lack of associated watercourse within the project area reduces the overall suitability for floodflow alteration, and production export, keeping them suitable but not principal functions.

The project site has no history of flooding. The crossing is being replaced due to the deterioration of the existing metal pipe. The proposed culvert will be the same size, length and set in the same configuration as the existing culvert with a change in material, from metal to concrete, as the only proposed difference.

General Application Criteria

This project is being submitted as a major impact application in accordance with Env-Wt 303.02 (f) projects located in or adjacent to prime wetlands designated under RSA 482-A:15. As stated above, the Town of Meredith designated Hatch Brook Prime Wetland is located on the west side of the project area.

The emergent cattail wetland on the east side of the project area is fed by an intermittent stream, which is represented on stream stats and NH GRANIT GIS maps. This stream originates from an unnamed pond located on the east side of Route 104, approximately 700' north of the project location. This channel flows through a forested area into the emergent cattail wetland on the east side of Route 104. When the channel enters the emergent wetland it disperses.

This crossing has no history of flooding and no signs of high velocity flows or scoured channels was observed within the project area during the delineation. NHDOT is seeking to upgrade the material of the pipe during construction. The existing 48" metal pipe is rotten on the bottom. This will be replaced with a 48" reinforced concrete pipe to ensure longer overall viability of the structure.

Consistent with Env-Wt 302.03(a), describe the impact of the proposed project design and provide evidence which demonstrates that,

(1) Potential impacts have been avoided to the maximum extent practicable; and
The proposed alternative avoids impacts to the maximum extent practicable.
The proposed project avoids impacts to the maximum extent practicable. The applicants are proposing to replace an existing culvert in the same location and the same length and trajectory of the existing pipe. The headwalls and wing walls will be replaced in the same footprint as the existing structures. There is no permanent impact to jurisdictional areas outside of the existing structures.

(2) *Any unavoidable impacts have been minimized.*
All unavoidable impacts have been minimized by the proposed project. All proposed construction is within the areas in the immediate vicinity of the crossing. The entire project consists of the replacement of existing structures within the existing footprints.

As stated above, the east side emergent wetland is fed by an intermitted stream that originates from an unnamed pond. The intermittent stream disperses prior to the emergent wetland system. During the onsite delineation no intermittent stream channel was observed. This crossing is not eligible for routine roadway submittal because of the prime wetland located at the culvert outlet (west side of Route 104). This crossing has no history of flooding and is being replaced due to the deterioration of the existing metal pipe. The proposed culvert will be installed in the same location and configuration and will be the same length and size as the existing culvert.

Consistent with Env-Wt 302.03(b), the applicant is required to submit a compensatory mitigation proposal in accordance with Env-Wt 800, because the project doesn't meet any of the exemption criteria. Based on a phone conversation between Cynthia M. Balcius CWS, CSS, CPESC of Stoney Ridge Environmental and Lori Sommer, Mitigation Coordinator of NH Department of Environmental Services in early January of 2018, it was decided that the appropriate course of mitigation would be to develop a planting buffer plan for the upland areas in the immediate vicinity of the project. Native plant species were chosen to correlate with the native vegetation within the project area. These additional plantings will enhance the project area after work is complete by creating an transitional, vegetated upland buffer between the edge of Route 104 and the edge of the Hatch Brook Prime wetland. Currently there is no native vegetated buffer between the road and the edge of the prime wetland, potentially reducing the systems functions and values along the wetland edge.

Total Mitigation Planting Area 1020 sq.ft.

Upland Planting Zone---------- 1020 sq.ft.

Scientific Name	Common Name	Quantity	Size/Type
Vaccinium angustifolium	low-bush blueberry	14	6-9" potted plants
Viburnum lentago	nannyberry	14	18-24" potted plants
Cornus amomum	silky dogwood	14	18-24" potted plants

This planting zone consists of two upland transition planting areas along the west side of the project area. There is a 590 sq.ft. planting area to the south of the culvert and a 429 sq.ft. planting area to the north of the culvert. Currently there are limited plantings in the upland adjacent to the wetland area. These additional plantings will enhance the overall area and provided a vegetated upland buffer around the prime wetland. The nannyberry and silky dogwood will be planted in the back two-thirds of the planting areas, on either side of the culvert, closest to the wetland. The low-bush blueberry will be installed along the outer, roadside, edge of the planting zones, on either side of the culvert.

The planting areas will be over seeded with an understory seed mix. SRE recommends utilizing transitional stabilizing wildlife seed mix (specifications below). Both planting areas should be stabilized with 2"-3" of weed free straw.

Transitional Stabilizing Wildlife Mix

Cornus racemosa (Gray Dogwood), *Solidago canadensis* (Canada Goldenrod), *Elymus canadensis* (Canada Wild Rye), *Panicum virgatum* (Switchgrass), *Viburnum lentago* (Nannyberry), *Hamamelis virginian*a (Witch Hazel), *Oenothera biennis* (Evening Primrose), *Achillea millefolium* (Common Yarrow), *Polygonum pennsylvanicum* (Pennsylvania Knotweed), *Helenium autumnale* (Common Sneezeweed), *Asclepias syrica* (Milkweed), *Daucus carota* (Queen Anne's lace), *Andropogon scoparius* (Little Bluestem).

Recommended Seeding Rates: Supplemental l lb/6,000 sq. ft. or Straight l lb/3,000

NHDOT will monitor the site at the end of each growing season, over a period of two years and document the success of the plantings. NHDOT will provide a monitoring report to NHDES at the end of each of the two growing seasons.

If there are any additional questions regarding this project or application, please feel free to contact us at (603) 776-5825.

Sincerely,
Stoney Ridge Environmental, LLC

Deidra Benjamin CWS, CESSWI
Project Manager

Cynthia M. Balcius CSS, CWS, CPESC
Senior Project Manager

NHDES-W-06-012

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management

Check the status of your application: www.des.nh.gov/onestop

RSA/Rule: RSA 482-A/ Env-Wt 100-900

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

1. REVIEW TIME: Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. MITIGATION REQUIREMENT:

If mitigation is required a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if Mitigation is Required, please refer to the Determine if Mitigation is Required Frequently Asked Question.

Mitigation Pre-Application Meeting Date: Month: __ Day: __ Year: ____

☐ N/A - Mitigation is not required

3. PROJECT LOCATION:

Separate wetland permit applications must be submitted for each municipality that wetland impacts occur within.

ADDRESS: **Route 104 Right-of-Way**			TOWN/CITY: **Meredith**
TAX MAP: **R02**	BLOCK:	LOT: **ROW**	UNIT:
USGS TOPO MAP WATERBODY NAME: ☒ NA		STREAM WATERSHED SIZE: ☐ NA	
LOCATION COORDINATES (If known): ☐ Latitude/Longitude ☐ UTM ☐ State Plane			

4. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

The applicant is proposing to replace an existing 48" CMP culvert with a 48" RCP culvert in the same location, configuration and length. Water flows through the culvert from east to west, under Route 104 in Meredith. As part of this project the headwalls and wing walls will also be replaced in the same footprint. Sediment and erosion controls will be installed prior to construction and will remain in place until work is complete.

5. SHORELINE FRONTAGE:

☒ NA This does not have shoreline frontage. SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Web Page.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	☐ YES ☐ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:2	☐ YES ☐ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval Per RSA 485-A	☐ YES ☐ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Shoreland Permit Per RSA 483-B	☐ YES ☐ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED

7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **18** - **0361**

b. ☐ Designated River the project is in ¼ miles of: _____; and
date a copy of the application was sent to the Local River Management Advisory Committee: Month: __ Day: __ Year: ____
☒ N/A

8. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **Hanscom, Alan**

TRUST / COMPANY NAME: **NHDOT District 3** | MAILING ADDRESS: **2 Sawmill Road**

TOWN/CITY: **Gilford** | STATE: **NH** | ZIP CODE: **03249**

EMAIL or FAX: **alan.hanscom@dot.nh.gov** | PHONE: **603-524-6667**

ELECTRONIC COMMUNICATION: By initialing here: _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.

9. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.:

TRUST / COMPANY NAME: **NHDOT** | MAILING ADDRESS: **P.O. Box 483**

TOWN/CITY: **Concord** | STATE: **NH** | ZIP CODE: **03302-0483**

EMAIL or FAX: **matt.urban@dot.nh.gov** | PHONE: **603-271-3226**

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.

10. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: **Balcius, Cynthia M. CWS, CSS, CPESC** | COMPANY NAME: **Stoney Ridge Environmental**

MAILING ADDRESS: **229 Prospect Mountain Road**

TOWN/CITY: **Alton** | STATE: **NH** | ZIP CODE: **03809**

EMAIL or FAX: **cbalcius@stoneyridgeenv.com** | PHONE: **603-776-5825**

ELECTRONIC COMMUNICATION: By initialing here CB, I hereby authorize NHDES to communicate all matters relative to this application electronically.

11. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for NHPA 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
		/ /

MUNICIPAL SIGNATURES

12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

⇨ Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

14. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland		☐ ATF		☐ ATF
Scrub-shrub wetland		☐ ATF		☐ ATF
Emergent wetland	369	☐ ATF	126	☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream		☐ ATF		☐ ATF
Perennial Stream / River	/	☐ ATF	/	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	/	☐ ATF
Bank - Perennial stream / River	/	☐ ATF	/	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland	13	☐ ATF	122	☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
Vernal Pool		☐ ATF		☐ ATF
TOTAL	382 /		248 /	

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

15. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200

☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking)	**630** sq. ft.	X	$0.20 =	**$ 126.00**
Temporary (seasonal) docking structure:	sq. ft.	X	$1.00 =	**$**
Permanent docking structure:	sq. ft.	X	$2.00 =	**$**
Projects proposing shoreline structures (including docks) add $200			=	**$**
			Total =	**$ 126.00**
The Application Fee is the above calculated Total or $200, whichever is greater =				**$ 200.00**

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Land Resources Management
Wetlands Bureau
Check the Status of your application: www.des.nh.gov/onestop

RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

NHDOT District 3 has identified that this 48" corrugated metal pipe crossing, located under Route 104 in Meredith, NH, is rotten adn structurally unsound. This pipe needs to be replaced before the entire structure is compromised. As a result of this, NHDOT is opting to replace the existing culvert, with a 48" reinforced concrete pipe.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

The proposed alternative replaces an existing wetland crossing that is rotten and at risk of no longer functioning properly. DOT is seeking to replace the 48" CMP with a 48" RCP. This is the least impacting alternative to nearby wetland surface waters because it proposes only temporary impacts to jurisdictional areas in order to properly install the headwall and wing wall.
.

3. The type and classification of the wetlands involved.

The wetlands to be impacted are classified as palustrine, emergent, persistent, seasonally flooded/saturated (PEM1E) on the east side of the crossing and as palustrine, emergent, persistent, seasonally flooded/saturated and palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated (PEM1E/PSS1E) on the west side of the crossing. The wetland at the west side of the crossing has been designated by the Town of Meredith as the Hatch Brook prime wetland system.

4. The relationship of the proposed wetland to be impacted relative to nearby wetlands and surface water.

The wetland to be impacted consists of an emergent, cattail wetland system on the east side of Route 104 that is fed by an intermittent stream. The wetland on the west side of the project area is part of the Town of Meredith Hatch Brook Prime Wetland system. The impacts associated with this project are limited to the immediate work area, within the NHDOT Right-of-Way and will have negligible impacts on the two wetland systems.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

The impact areas are roadside, emergent wetlands. They are not rare.

6. The surface area of the wetlands that will be impacted.

WETLAND IMPACT SUMMARY

WETLAND/BANK IMPACT IDENTIFICATION	WETLAND CLASSIFICATION	PERMANENT IMPACT (SF)	TEMPORARY IMPACT (SF)
A	PEM1E	369	126
B	PEM1E/PSS1E (within Prime Wetland)	13	122
TOTAL		382	248

7. The impacts on plants, fish and wildlife including, but not limited to:

a. Rare, special concern species;

b. State and federally listed threatened and endangered species;

c. Species at the extremities of their ranges;

d. Migratory fish and wildlife;

e. Exemplary natural communities identified by the DRED-NHB; and

f. Vernal pools.

a. No rare or special concern species are known to occur in the project vicinity.

b. New Hampshire Natural Heritage Bureau has determined that there are no known endangered or threatened species within the project area.

c. No species at the extremities of their range have been identified within the project vicinity.

d. No migratory fish or wildlife species are known within the project area.

e. DRED-NHB has not identified this system as an exemplary natural community.

f. No vernal pools have been identified within the project area.

8. The impact of the proposed project on public commerce, navigation and recreation.

The proposed project will have a positive impact on public commerce, navigation and recreation by replacing an existing, rotten culvert that is no longer structurally sound with a new RCP culvert.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an

applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.
This project will have an overall positive impact of the aesthetics associated with the Hatch Brook prime wetland. As part of this project DOT is proposing to plant a small vegetated buffer along the edge of the prime wetland, reducing the visibility of the road from within the prime wetland.
10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.
The proposed project will not interfere with or obstruct any public rights of passage.
11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if the applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on the upstream and downstream abutting properties.
There will be no impact on abutting property owners. The work will occur within NHDOT Right-of-Way and will replace an existing crossing. This wetland drains from the east side of Route 104 to the west side and into a larger prime wetland system. There are no structures adjacent or downstream of the immediate project area that could be impacted by this project.
12. The benefit of a project to the health, safety, and well being of the general public.
The proposed project will benefit the health and safety of the general public by improving an existing crossing that has started to degrade. Replacing this existing crossing and utilizing a concrete pipe, as opposed to metal, will ensure longer continued function of this crossing.
13. The impact of a proposed project on quantity or quality of surface and groundwater. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the

quality of water entering and exiting the site.
This project will have no impact on the quality of surface or groundwater, the work is relegated to areas of existing impact. To ensure that surface water and groundwater will not be impacted by the project sediment and erosion controls will be installed prior to construction. All work will occurr during low flow conditions. Silt fence will be installed outside of the project area in both the inlet and outlet ends of the culvert. Sand bags will be installed along both ends to create a dry work space. Clean water bypass pumping will be used to keep work areas clear of water. A dirt bag will be available on site should conditions deem it necessary.
14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.
The proposed project will no cause or increase flooding, erosion or sedimentation within the project area. The existing 48" CMP is being replaced with a 48" RCP, maintaining the hydrologic capacity of the crossing. Also, as stated above, sediment and erosion controls will be installed prior to construction and best management practices will be utilized throughout construction to prevent erosion and sedimentation in the project area.
15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.
The proposed project will not redirect or reflect current or wave energy. There is no open water that would produce wave energy.
16. The cumulative impact that would result of all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.
The proposed project is within a public highway Right-Of-Way related to transportation maintenance and safety and the project will have minimal impacts to jurisdictional areas. Abutting owners who have existing crossings in similar conditions would also have minimal impact.
17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.
As laid out in the context of this application, this project will have a net positive effect on the values and functions of this wetland and wetland complex. By replacing the existing 48" CMP with a 48" RCP the suitability for floodflow alteration, production export, and small wildlife passage will be maintained. Allowing continued, unimpeded hydrologic connectivity between the emergent wetland on the east side of the road and the larger system on the west side of the road will reduce

flow restriction and reduce potential erosion and sedimentation on the outlet (west) side of the culvert.
18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.
The construction area is not located near any sites of value listed in the National Registry of Natural Landmarks.
19. The impact upon the value of areas named in acts of Congress or presidential proclamations as national rivers, national wilderness area, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.
There are no areas of value named in acts of congress or presidential proclamations anywhere near the construction site.
20. The degree to which a project redirects water from one watershed to another.
This proposed stream crossing replaces an existing culvert in the same location, confiiguation and length. Water will not be redirected from one watershed to another.
Additional Comments

US Army Corps of Engineers®
New England District

New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*		x
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?		x
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		x
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	x	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		x
2.5 The overall project site is more than 40 acres.		x
2.6 What is the size of the existing impervious surface area?	801 sq.ft.	
2.7 What is the size of the proposed impervious surface area?	827 sq.ft.	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	42.6%/43.9%	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)		x
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		x

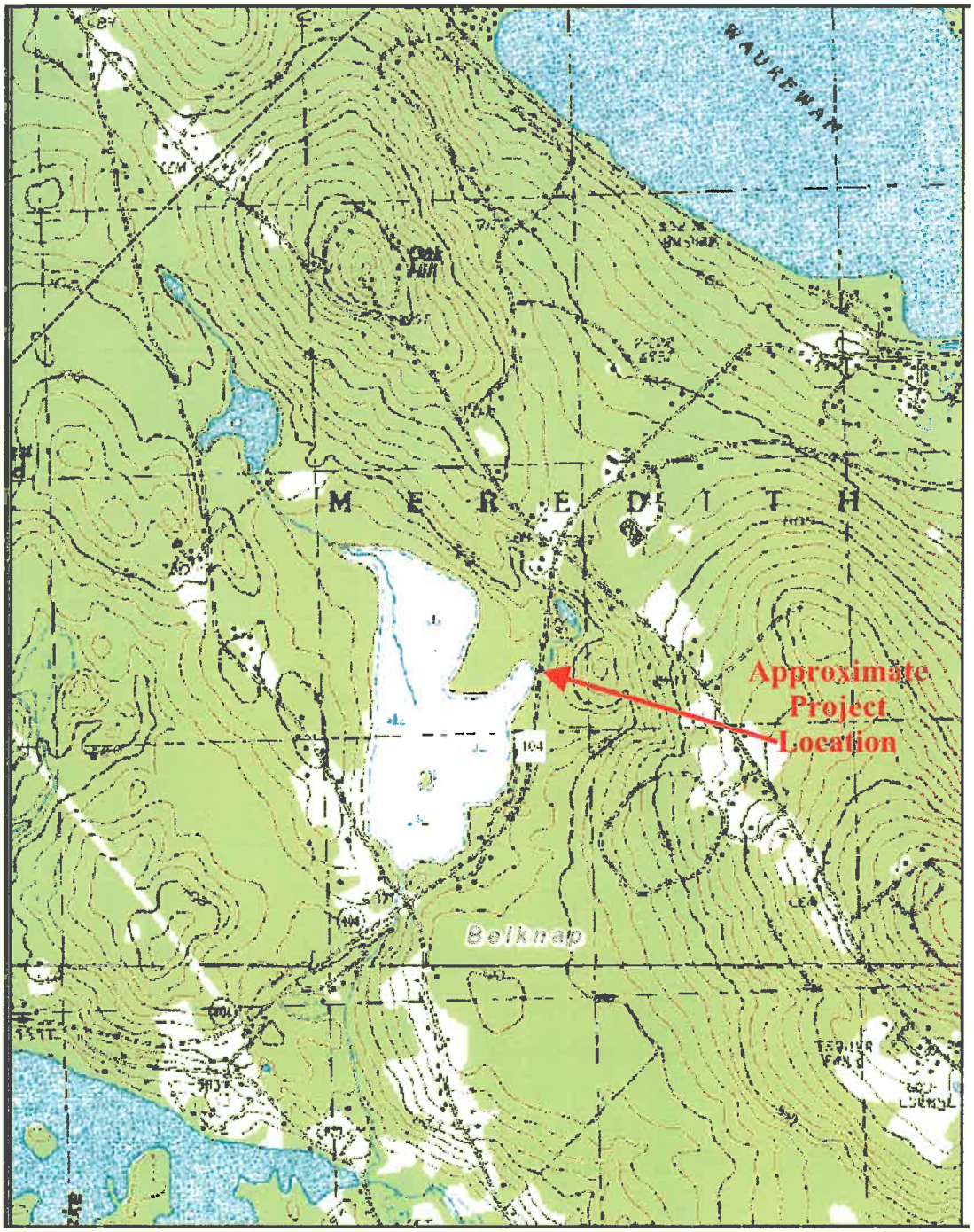
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		x
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		x
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	x	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		x
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	N/A	
5. Historic/Archaeological Resources		
For a minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) shall be sent to the NH Division of Historical Resources as required on Page 5 of the PGP**	x	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

** If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law..

SRE # 17-072

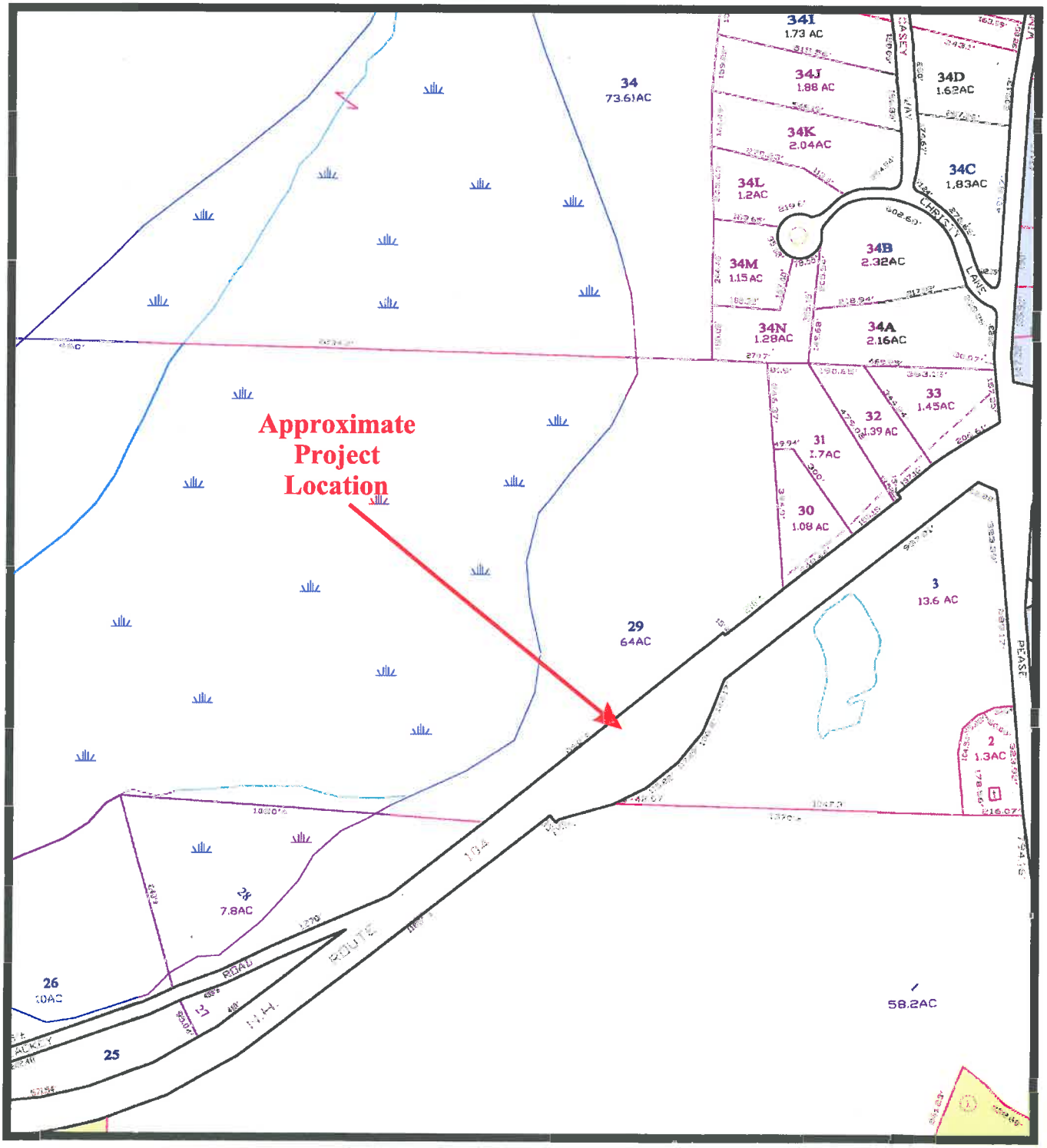
Site Locus
NH Department of Transportation
Route 104 Culvert Crossing
Tax Map R02 - Right-of-Way
Meredith, New Hampshire



Scale 1:24,000

SRE # 17-072

Tax Map
NH Department of Transportation
Route 104 Culvert Crossing
Tax Map R02 - Right-of-Way
Meredith, New Hampshire



City of Concord, Tax Map 81

Stoney Ridge Environmental

PHOTO LOG
NH Department of Transportation
Route 104 Culvert Crossing
Tax Map R02, Right-of-Way
Meredith, New Hampshire
August 2017

SRE # 17-072

PHOTO 1: A view looking into the existing CMP culvert from the east side of Route 104. Both the culvert and headwall have been damaged over time.

PHOTO 2: A view looking into the wetland on the east side of Route 104. This is an emergent wetland heavily dominated by cattail.

PHOTO LOG
NH Department of Transportation
Route 104 Culvert Crossing
Tax Map R02, Right-of-Way
Meredith, New Hampshire
August 2017

SRE # 17-072

PHOTO 3: This picture was taken from the top of the culvert headwall, looking down at the culvert inlet.

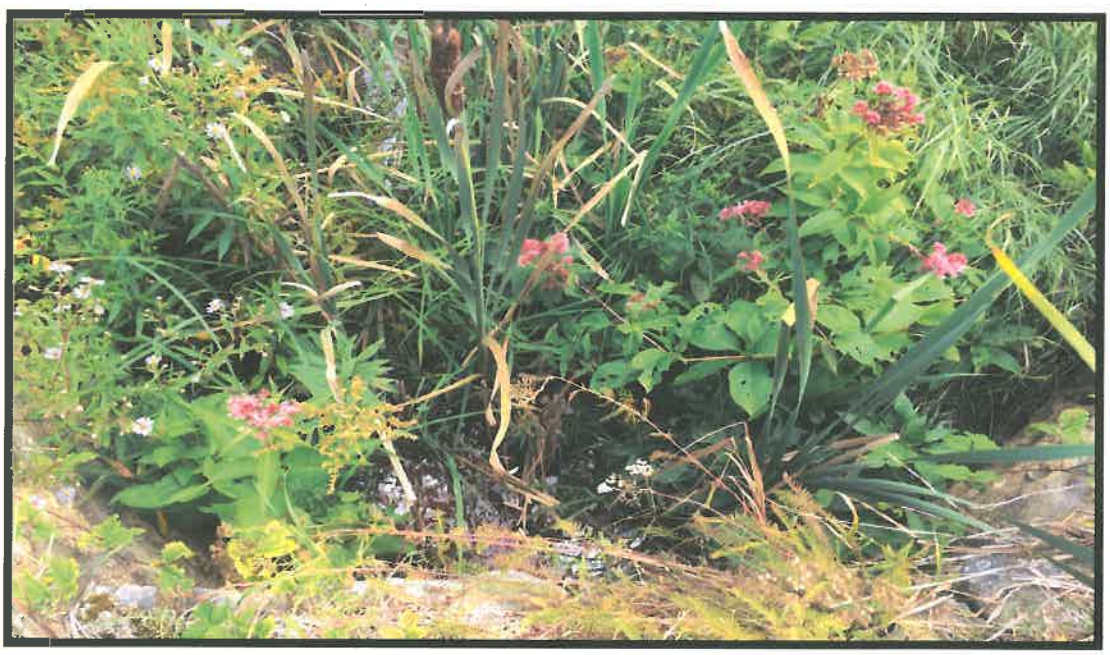


PHOTO 4: A view looking across the emergent, cattail wetland on the east side of Route 104.

PHOTO LOG
NH Department of Transportation
Route 104 Culvert Crossing
Tax Map R02, Right-of-Way
Meredith, New Hampshire
August 2017

SRE # 17-072

PHOTO 5: This is a view of the existing prime wetland on the west side of Route 104. A snowmobile trail runs through the wetland parallel to the road. The wooden snowmobile bridge can be seen in this picture.

PHOTO 6: This photo shows a view of the existing prime wetland on the west side of Route 104, looking north across the snowmobile bridge.

PHOTO LOG
NH Department of Transportation
Route 104 Culvert Crossing
Tax Map R02, Right-of-Way
Meredith, New Hampshire
My & August 2017

SRE # 17-072

PHOTO 7: Looking towards the existing culvert outlet on the west side of Route 104. This photo shows the rusting metal pipe.

PHOTO 8: Another view looking at the prime wetland the on the west side of the project area.

PHOTO LOG
NH Department of Transportation
Route 104 Culvert Crossing
Tax Map R02, Right-of-Way
Meredith, New Hampshire
August 2017

SRE # 17-072

PHOTO 9: This is a view of one of the proposed mitigation planting areas. A vegetated upland buffer is being proposed immediately adjacent to the prime wetland on either side of the culvert crossing, on the west side of Route 104.

New Hampshire Natural Heritage Bureau

To: Deidra Benjamin
229 Prospect Mountain Road
Alton, NH 03809

Date: 1/26/2018

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 1/26/2018

NHB File ID: NHB18-0361 Applicant: Matt Urban

Location: Tax Map(s)/Lot(s): R02, R-O-W
Meredith

Project Description: The applicants are proposing to replace an existing 48" cmp with a 48" rcp culvert.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 1/25/2019.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB18-0361

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-0942
Event Code: 05E1NE00-2018-E-02152
Project Name: Route 104 - Meredith Culvert Replacement

February 08, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-0942

Event Code: 05E1NE00-2018-E-02152

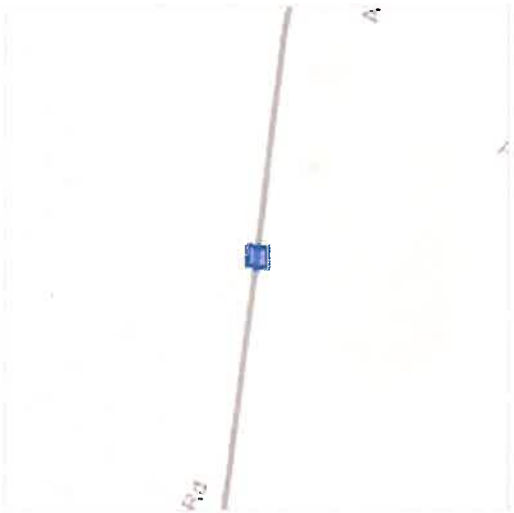
Project Name: Route 104 - Meredith Culvert Replacement

Project Type: TRANSPORTATION

Project Description: NHDOT is proposing to replace an existing 48" cmp with a 48" rcp

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.635046302868574N71.53051264986892W



Counties: Belknap, NH

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Small Whorled Pogonia *Isotria medeoloides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

NHDOT Project No 41313

Route 104 - North Culvert Crossing
TAX MAP R02, Right-off-Way
Meredith, New Hampshire

MITIGATION PLANTING PLAN

January 2018

Total Mitigation Planting Area 1020 sq.ft.

Upland Planting Zone---------- 1020 sq.ft.

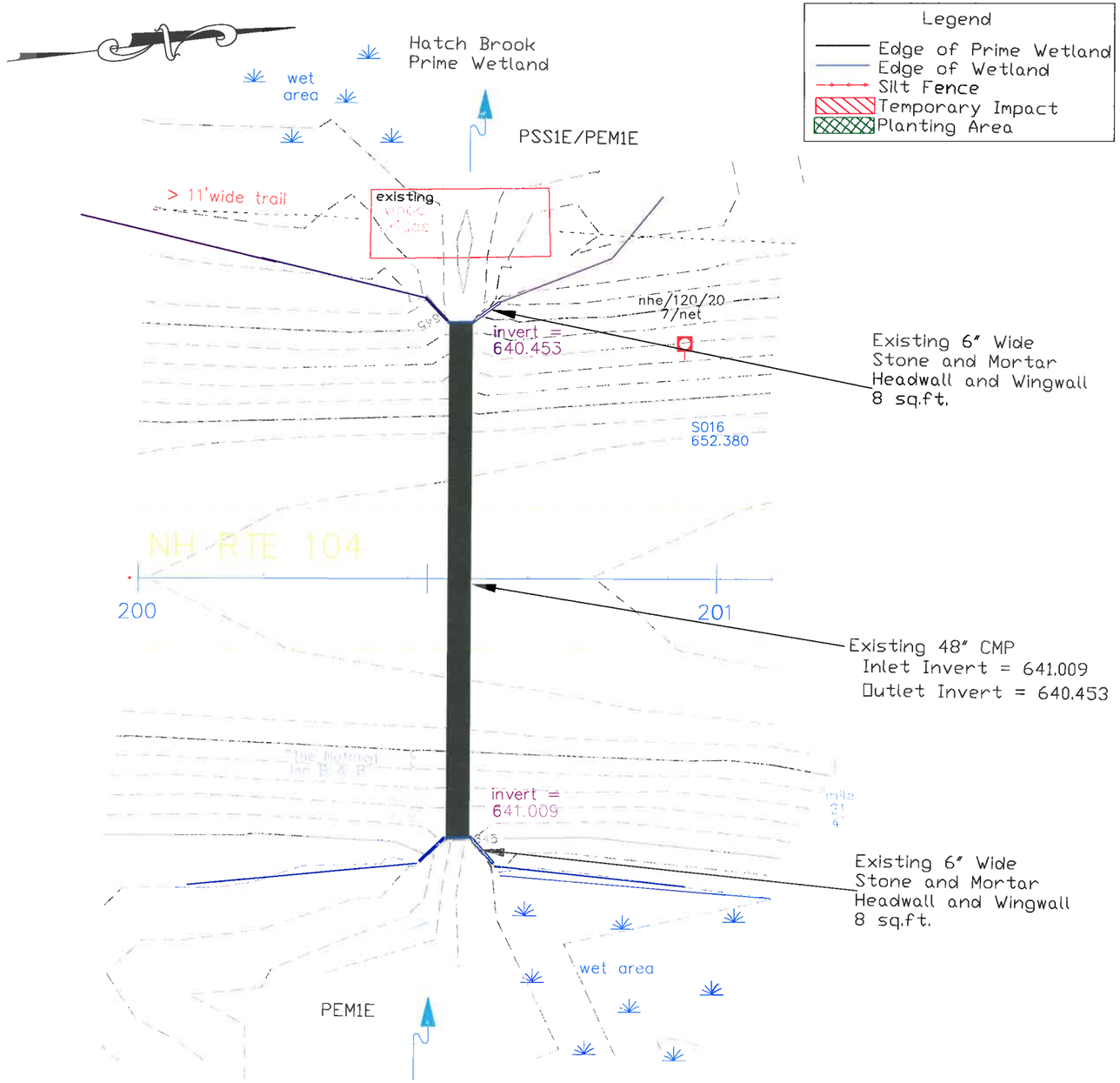
Scientific Name	Common Name	Quantity	Size/Type
Vaccinium angustifolium	low-bush blueberry	14	6-9" potted plants
Viburnum lentago	nannyberry	14	18-24" potted plants
Cornus amomum	silky dogwood	14	18-24" potted plants

This planting zone consists of two upland transition planting areas along the west side of the project area. There is a 590 sq.ft. planting area to the south of the culvert and a 429 sq.ft. planting area to the north of the culvert. Currently there are limited plantings in the upland adjacent to the wetland area. These additional plantings will enhance the overall area and provided a vegetated upland buffer around the prime wetland. All plantings will be planted on 5' centers. The nannyberry and silky dogwood will be planted in the back two-thirds of the planting areas, on either side of the culvert, closest to the wetland. The low-bush blueberry will be installed along the outer, roadside, edge of the planting zones, on either side of the culvert.

The planting areas should be over seeded with an understory seed mix. SRE recommends utilizing transitional stabilizing wildlife seed mix (specifications below). Both planting areas should be stabilized with 2"-3" of weed free straw.

Transitional Stabilizing Wildlife Mix
Cornus racemosa (Gray Dogwood), Solidago canadensis (Canada Goldenrod), Elymus canadensis (Canada Wild Rye), Panicum virgatum (Switchgrass), Viburnum lentago (Nannyberry), Hamamelis virginiana (Witch Hazel), Oenothera biennis (Evening Primrose), Achillea millefolium (Common Yarrow), Polygonum pennsylvanicum (Pennsylvania Knotweed), Helenium autumnale (Common Sneezeweed), Asclepias syrica (Milkweed), Daucus carota (Queen Anne's lace), Andropogon scoparius (Little Bluestem).
Recommended Seeding Rates: Supplemental 1 lb/6,000 sq. ft. or Straight 1 lb/3,000

NHDOT will monitor the site at the end of each growing season, over a period of two years and document the success of the plantings. NHDOT will provide a monitoring report to NHDES at the end of each of the two growing seasons.



Existing 6" Wide
Stone and Mortar
Headwall and Wingwall
8 sq.ft.

Existing 48" CMP
Inlet Invert = 641.009
Outlet Invert = 640.453

Existing 6" Wide
Stone and Mortar
Headwall and Wingwall
8 sq.ft.

Legend

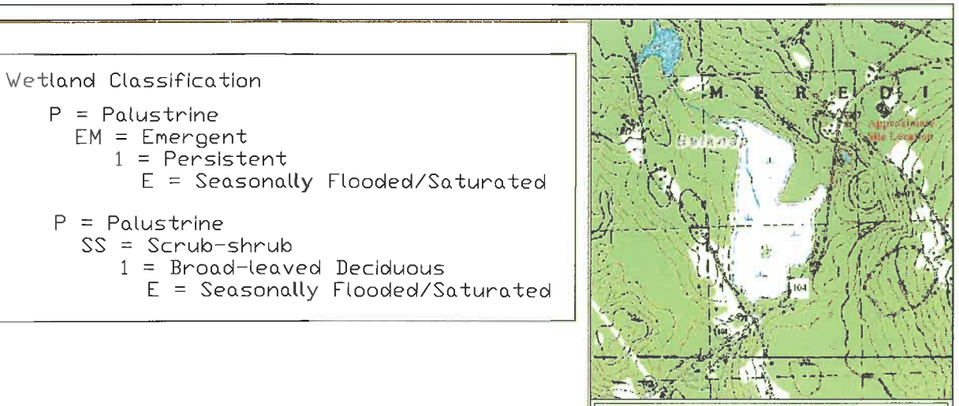
- Edge of Prime Wetland
- Edge of Wetland
- Silt Fence
- Temporary Impact
- Planting Area

Wetland Classification

P = Palustrine
EM = Emergent
1 = Persistent
E = Seasonally Flooded/Saturated

P = Palustrine
SS = Scrub-shrub
1 = Broad-leaved Deciduous
E = Seasonally Flooded/Saturated

Tier One Crossing
108 acre drainage area



Culvert N

MEREDITH
41313

PLAN PREPARATION RECORD PLAN

WX SDR FILES PROCESSED BY : SEL
MS DATA ANNOTATED BY : SEL
FIELD INSPECTED BY : SEL,JS
PLAN PREP COMPLETION DATE : 5-3-17
SURVEY COMPLETION DATE : 4-3-17
SURVEY BOOK NUMBERS : 13396

+ N. H. D. O. T. +

SCALE IN FEET
0 10 20 30

Jurisdictional Wetlands were delineated by Stoney Ridge Environmental LLC on 8/31/17 utilizing the following standards:

1) United States Department of Agriculture, Natural Resources Conservation Service. 2016. *Field Indicators of Hydric Soils in the United States*, Version 8.0. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
2) *Field Indicators for Identifying Hydric Soils in New England*. Version 3. April 2004. NEWFPCC Wetlands Workgroup. Wilmington, MA 01887.
3) *North American Digital Flora: National Wetland Plant List, version 2.1.0 (http://wetland_plants.usace.army.mil)*. U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill.
4) *State of New Hampshire 2016 Wetland Plant List*. Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings*. Phytoneuron 2016-30:1-17.
5) *Corps of Engineers Wetlands Delineation Manual*. January 1987. Wetlands Research Program Technical Report Y-87-1.
6) *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: Northcentral and Northeast Region. January 2012, version 2. U.S. Army Corps of Engineers. Environmental Laboratory ERDC/EL TR-12-1.
7) *Classification of Wetlands and Deepwater Habitats of the United States*. December 1979. L. Cowardin, V. Carter, F. Golet, and E. LaRoe. U.S Department of the Interior. Fish and Wildlife Service. FWS/OBS-79/31.

Stoney Ridge Environmental LLC, 229 Prospect Mountain Road, Alton, NH 03809
(p): 603-776-5825, (f) 603-776-5824, info@stoneyridgenv.com

Revisions			
No.	Date	Description	By

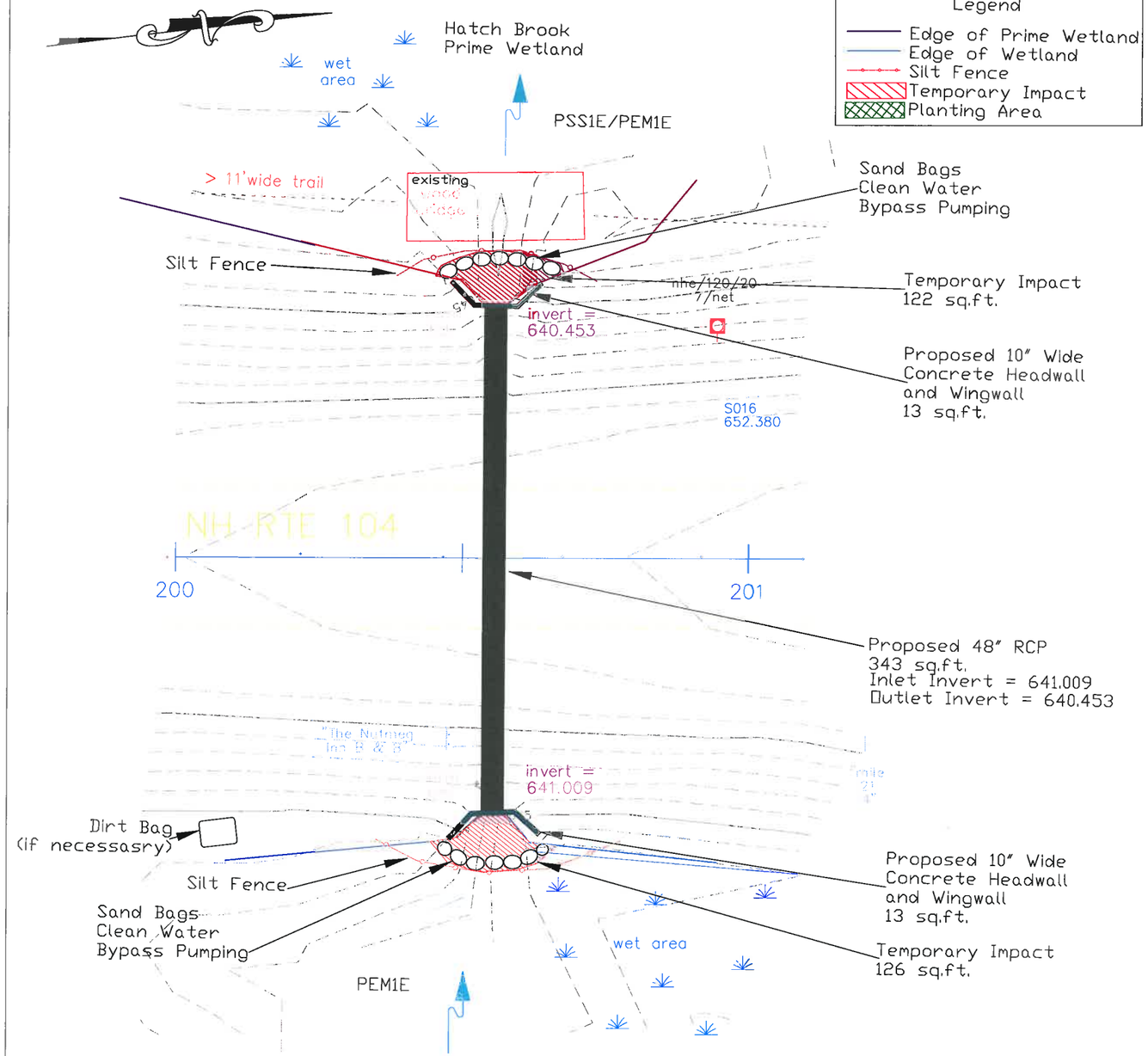
1/24/18	SCALE: 1" = 10'
PROJECT NO: 17-072	SHEET 1 OF 3

Base Plan Provided by NHDOT

Existing Conditions Plan

NHDOT
TAX MAP R02, ROW
ROUTE 104
MEREDITH, NH

Stoney Ridge Environmental LLC
229 Prospect Mountain Road, Alton, NH
Phone: 603-776-5825



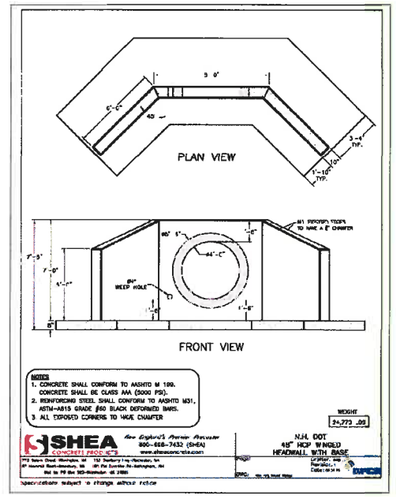
Legend

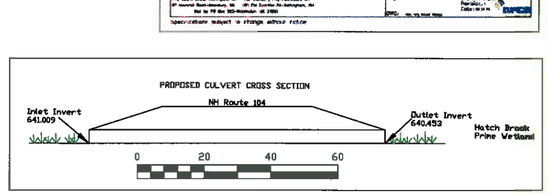
- Edge of Prime Wetland
- Edge of Wetland
- Silt Fence
- Temporary Impact
- Planting Area

Wetland Classification

P = Palustrine
EM = Emergent
1 = Persistent
E = Seasonally Flooded/Saturated

P = Palustrine
SS = Scrub-shrub
1 = Broad-leaved Deciduous
E = Seasonally Flooded/Saturated





Culvert N

MEREDITH
41313

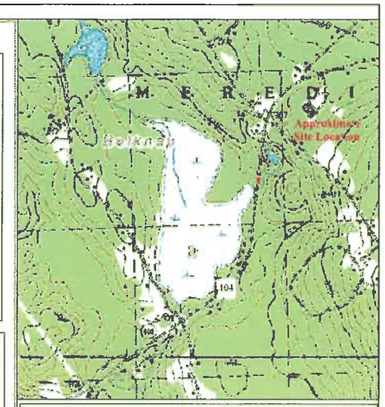
PLAN PREPARATION RECORD PLAN

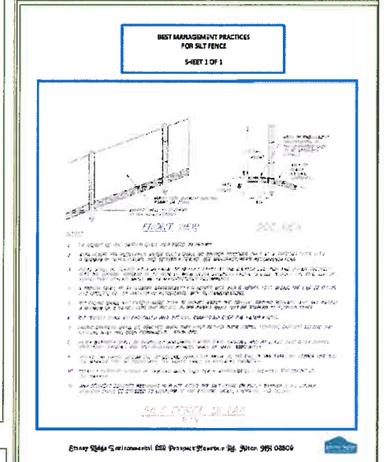
MX SDR FILES PROCESSED BY : SEL
MS DATA ANNOTATED BY : SEL
FIELD INSPECTED BY : SEL,JS
PLAN PREP COMPLETION DATE : 5-3-17
SURVEY COMPLETION DATE : 4-3-17
SURVEY BOOK NUMBERS : 13386

+ N. H. D. O. T. +

SCALE IN FEET

0 10 20 30





Stoney Ridge Environmental 229 Prospect Mountain Rd. Alton, NH 03809

Base Plan Provided by NHDOT

Proposed Conditions Plan

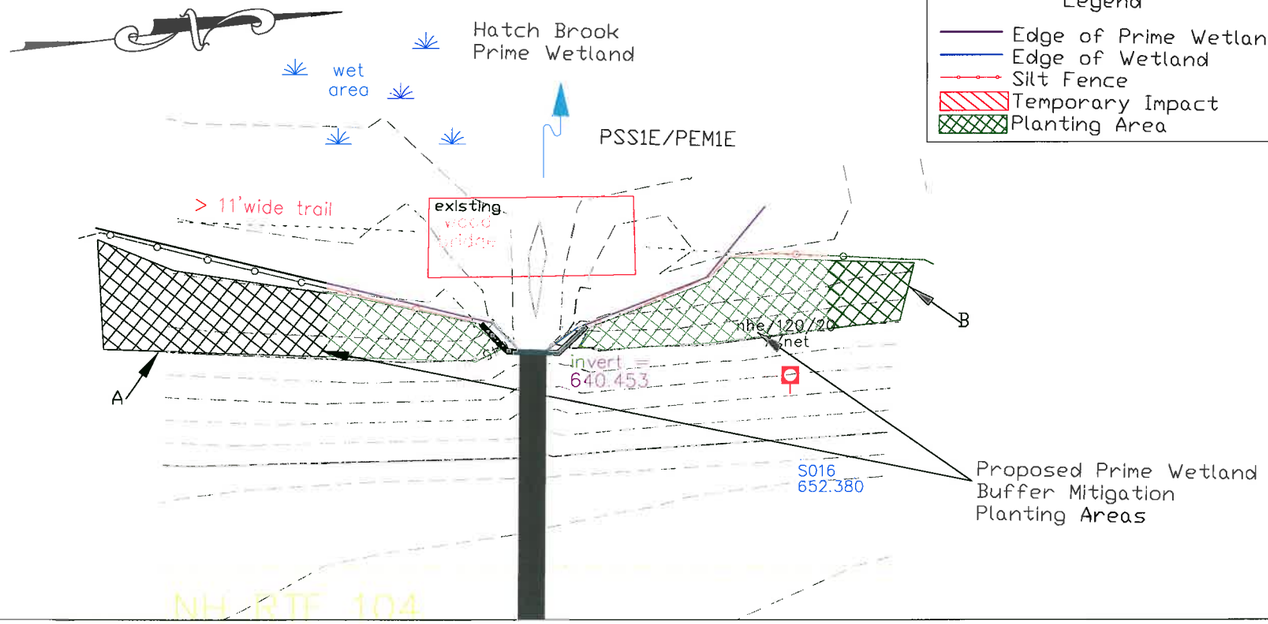
NHDOT
TAX MAP R02, ROW
ROUTE 104
MEREDITH, NH

Revisions

No.	Date	Description	By

DATE: 1/24/18 | SCALE: 1" = 10'
PROJECT NO: 17-072 | SHEET 2 OF 3

Stoney Ridge Environmental LLC
229 Prospect Mountain Road, Alton, NH
Phone: 603-776-3825



Legend

- Edge of Prime Wetland
- Edge of Wetland
- Silt Fence
- Temporary Impact
- Planting Area

Wetland Classification

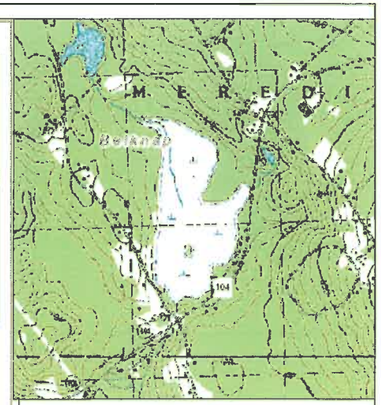
P = Palustrine
EM = Emergent
1 = Persistent
E = Seasonally Flooded/Saturated

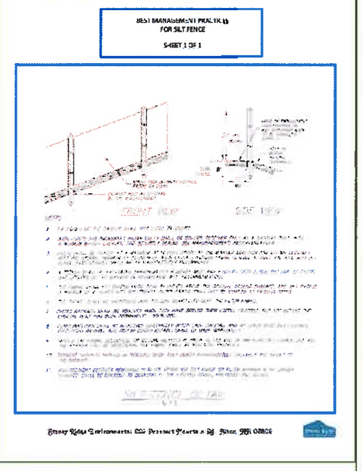
P = Palustrine
SS = Scrub-shrub
1 = Broad-leaved Deciduous
E = Seasonally Flooded/Saturated

Mitigation Planting Area

Planting Zone	Area
A	590 sq.ft.
B	429 sq.ft.

Tier One Crossing
108 acre drainage area





NHDOT Project No 41313
Route 104 - North Culvert Crossing
TAX MAP R02, Right-off-Way
Meredith, New Hampshire

MITIGATION PLANTING PLAN
January 2018

Total Mitigation Planting Area 1020 sq.ft.

Upland Planting Zone---------- 1020 sq.ft.

Scientific Name	Common Name	Quantity	Size/Type
Vaccinium angustifolium	low-bush blueberry	14	6-9" potted plants
Viburnum lentago	nannyberry	14	18-24" potted plants
Cornus amomum	silky dogwood	14	18-24" potted plants

This planting zone consists of two upland transition planting areas along the west side of the project area. There is a 590 sq.ft. planting area to the south of the culvert and a 429 sq.ft. planting area to the north of the culvert. Currently there are limited plantings in the upland adjacent to the wetland area. These additional plantings will enhance the overall area and provided a vegetated upland buffer around the prime wetland. All plantings will be planted on 5' centers. The nannyberry and silky dogwood will be planted in the back two-thirds of the planting areas, on either side of the culvert, closest to the wetland. The low-bush blueberry will be installed along the outer, roadside, edge of the planting zones, on either side of the culvert.

The planting areas should be over seeded with an understory seed mix. SRE recommends utilizing transitional stabilizing wildlife seed mix (specifications below). Both planting areas should be stabilized with 2"-3" of weed free straw.

Transitional Stabilizing Wildlife Mix
Cornus racemosa (Gray Dogwood), Solidago canadensis (Canada Goldenrod), Elymus canadensis (Canada Wild Rye), Panicum virgatum (Switchgrass), Viburnum lentago (Nannyberry), Hamamelis virginiana (Witch Hazel), Oenothera biennis (Evening Primrose), Achillea millefolium (Common Yarrow), Polygonum pennsylvanicum (Pennsylvania Knotweed), Helenium autumnale (Common Sneezeweed), Asclepias syrica (Milkweed), Daucus carota (Queen Anne's lace), Andropogon scoparius (Little Bluestem).
Recommended Seeding Rates: Supplemental 1 lb/6,000 sq. ft. or Straight 1 lb/3,000

NHDOT will monitor the site at the end of each growing season, over a period of two years and document the success of the plantings. NHDOT will provide a monitoring report to NHDES at the end of each of the two growing seasons.

NHDOT Project No 41313
Route 104 - North Culvert Crossing
TAX MAP R02, Right-off-Way, Meredith, New Hampshire
MITIGATION PLANTING PLAN - CONSTRUCTION SEQUENCE

1. Install sediment and erosion controls according to plan.
2. Remove existing roadside grass within both planting zones.
3. Bring in clean loam material to spread through the two planting areas.
4. Install the proposed planting according to the planting plan.
5. Seed the planting areas with an understory seed mix.
6. Stabilize the two planting areas with 2"-3" of weed free straw.

This is a view of planting area A

This is a view of planting area B

Revisions

No.	Date	Description	By

DATE: 1/24/18 SCALE: 1" = 10'
PROJECT NO: 17-072 SHEET 3 OF 3

Base Plan Provided by NHDOT

Proposed Planting Plan

NHDOT
TAX MAP R02, ROW
ROUTE 104
MEREDITH, NH

Stoney Ridge Environmental LLC
229 Prospect Mountain Road, Alton, NH
Phone: 603-776-5825